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III. *A Letter from Mr. John Friend to Dr. Sloane, dated Oxon. Jul. 26. concerning an Hydrocephalus.*

Sir ;

THE encouragement you give to Enquiries of this Nature, by communicating your own Observations, as well as recommending those of others, makes me trouble you with the following account: Having had the good luck to meet with an *Hydrocephalus* which seem'd to have somewhat extraordinary in it, I thought it might not be improper to acquaint you with it. I shall only set down the particulars, as they offer'd themselves in Dissection, and leave it to your Judgment, whether they deserve to be taken notice of or no.

The outward Dimensions, taken before the Head was open'd.

	Inches
From the Eyebrows over the Crown to the Nape	23
Circumference from the { the <i>Offi Bregmatis</i>	26
Nape round. { the <i>Os Frontis</i>	24
From Ear to Ear, over the Crown	19
From the Eyebrows to the Chin	4
From one extremity of the Eyebrows to the other.	4 and half.
From the Chin to the coronal Suture	7 and half.
Circumference from the Chin round the Crown.	30
From one extremity of the { round the Nose	12
Ear backward to the other { round the Nape	6 & half
From Temple to Temple over the Fore-head	11
Circumference of the Head round the <i>Os Frontis & Occipitis</i>	29
	Cir-

Circumference	} of the Neck	9 and half
Length		2
Length of the Body		33
Circumference of the Thorax		18
Length of the Foot		4 and half
From the middleFingers end to theAcromion		12 and half
Circumference of the	{ Arm	5
	{ Calf	5 and half
	{ Thigh	8

After the integuments were remov'd the top of the *Cranium* appear'd soft & *Membranous*. The extent of the *Membran* from one Temple to the other was 8 Inches, between the parietal bones 3 and half, from the *Os frontis* to the *Os Occipitis* 12. In the middle just upon the Crown lay a Bone (in some places a little Cartilaginous) 5 inches long, and 1 broad, join'd to the *Membran* on every side; of the same thickness with the rest of the upper part of the *Cranium* that was bony, which was extremely thin every where, and the *Lamina* lay so close that in many places no diploe cou'd be discern'd. The *Membran* was as thin as the *Pericranium* which yet was easily divided from it.

None of the Sutures were entirely clos'd, those of the upper Jaw very loose. In the Temporal and Lambdoidal was an infinite number of the *Triquetra Wormiana*, all which had so many distinct Sutures.

Upon piercing the *Dura Mater*, a great quantity of Water flow'd out; it lay as well between the *Dura Mater* and the *Pia*, as in the Ventricles of the Brain. The Liquor was thin, pale, and insipid, there was taken out Five Quarts of it.

The *Dura Mater* was firm and entire, of its usual thickness, and stuck very close as well to the Membranous as to the bony parts of the *Cranium*. All its Processes and Sinus's were singular, the 4th sinus somewhat

ger than ordinary. A very large Vein of the *Dura Mater* enter'd the Longitudinal *Sinus*, directly forwards towards the *Crista Galli*, contrary to the Course of the Blood.

The *Pia Mater* was very much distended, and seem'd to be stretch'd as much as it cou'd bear. It lay smooth and equal upon the Surface of the Brain, there being neither any Circumvolutions in the Brain for it to go between, nor any Partition to the *Corpus Callosum*, tho' there was a large Falx in the *Dura Mater*. The lateral Ventricles were very thin: Towards the *Cerebellum* their upper part was quite wasted, so that nothing was left to cover the Cavity in that place, but the *Pia Mater*. This was so thin, that in stooping down the Head to empty the Water, it broke and hindred us from knowing exactly how much Water the Lateral Ventricles contain'd; but by their Cavity, which was very large, one might guess they held at least a Pint each: The 3d. and 4th. Ventricle had some little Water in them, but were scarce larger than usual, as *Steno* hath observ'd in his *Hydrocephalous Calf*.

The Brain had all its Parts plain and intire, tho' its Substance in most places was but very thin and loose: About the *Corpora Striata & Thalami nervorum Opticorum* it was tolerably thick, and firm enough, tho' nothing to what it is in a natural State.

The *Cerebrum & Cerebellum*, when laid out in their right Position were 11 Inches long; the *Cerebrum*, cross the lateral Ventricles, 9 broad. After all the Water was taken out, both of them weigh'd, *lib. 1 ss*.

The *Corpora Striata & Thalami Nervorum Opticorum* were very small in all their Dimensions; within side toward the Ventricles they were wrinkled and lay in folds, like those in the inner Coat of the Stomach. In the *Corpora Striata* there were no *Striae* discernible.

The

The *Plexus Choroides* was very small. The *Glandula pinealis* was somewhat bigger, but less compact than ordinary.

The Nates were very red and large ; 2 Inches long, 1 broad, and 1 thick : The Testes were not distinguish'd from the by any Protuberance ; they seem'd rather to be a Production, into which the Nates lessen'd by degrees like a Sugar-loaf.

The *Cerebellum* was very firm every where, and did not much exceed its natural Bulk. The Medullary Trunk which sends out those little Branches, like Trees, was thicker and harder than usual ; the Branches were not so much dispos'd, like those of a Tree, but went rather in single oblique Lines, like so many Rays drawn from a Point.

The Nerves were all regular and plain ; only the Olfactory were very small, the Optick did not joyn before they enter'd the Orbits.

The *Retē Mirabile* was very large, so was Dr. Ridley's Circular Sinus.

On the right side were two Carotid Arteries (the intercostal Nerve lay between them) they enter'd the Skull at the same hole. The Trunk of the Vertebral (where those Arteries unite) was extremely big and full of Blood. The Veins were neither larger, nor more than usual. Upon the Brain over the Lateral Ventricles, I cou'd easily discern three or four Lymphatics ; but they were too small to be trac'd. Whether this great Effusion of Water was caus'd by an Obstruction in the Capillary Arteries, (which might make the finer part of the *Serum* ooze thro' their Coats) or by a Rupture in the Lymphatics, must be determin'd by those of a better Judgment, at least of a stronger Conjecture.

The Mother brought the Child to *Oxford* for a Sight, the Account she gave of it was, that she was in Travel three Weeks, and that at last she was forc'd to have the

Vagina rip'd for its Passage. The Child was two Years and six Weeks old, it cou'd speak a little, cou'd not go, or hold up its Head; 'twas always Merry, never subject to Drowlines, Pain in the Head, want of Appetite, or Indisefition. Its Sight was somewhat Dim, and its Smelling but dull. It never had any Illness, only two or three Days before it Dy'd, 'twas very much troubled with the Gripes, and upon opening the *Abdomen*, the Guts were found extremely swell'd with Wind. Every thing else in both the lower Cavities was as it shou'd be.

By comparing those two Hydrocephali, which *Tulpins* gives an Account of; we may see how different each of them is from this. For his first was a Boy five Years old, the Skull no bigger than a Man's, and only five Pints of Water in it; the Brain had lost all its Shape, and most of its Substance, the Relicks of which stuck to the Skull. He says nothing more of the latter, than that it had a Quart of Water in one of the Lateral Ventricles.

Honoured Sir,

Your very humble Servant,

John Freind.